Amendments to the Claims:

1-48. (Cancelled)

49. (Currently Amended) A system for controlling the temperature of at least a portion of the body of a human or animal subject, said system comprising:

an elongate catheter that is insertable into the inferior vena cava ~~vasculature~~ of the patent;

a heat exchanger at a first location on the catheter, said heat exchanger being sized and configured such that it may be positioned within the inferior vena cava when the catheter is inserted therein ~~a blood vessel having a wall~~ such that blood will flow past the heat exchanger, a heat exchange fluid being passable through the heat exchanger without causing the heat exchange fluid to mix with the subject's blood such that heat will be exchanged between the heat exchange fluid flowing through the heat exchanger and blood flowing past the heat exchanger;

a temperature sensor affixed to the catheter at a second location that is also positioned within the inferior vena cava when the catheter is inserted therein ~~on the catheter~~, said temperature sensor being initially disposed in a non-deployed position and subsequently moveable to a deployed position wherein the temperature sensor extends 1.8 - 3.2 mm away from the catheter in temperature sensing contact with blood flowing through the inferior vena cava without resting in ~~does not remain in~~ substantial contact with the ~~blood vessel~~ wall of the inferior vena cava, said temperature sensor being thereby operative, when in its deployed position, to sense the temperature of blood flowing through the blood vessel subject's vasculature without substantial interference from heat exchange fluid passing through the catheter or from the adjacent wall of the vena cava; and,

a controller which receives a temperature signal from the temperature sensor and, in response to such received signal, controls the temperature and/or rate of heat exchange fluid passing through the heat exchanger to cause heating or cooling

of the subject's blood until the temperature sensed by the temperature sensor is substantially the same as a predetermined target temperature.

50. (Previously presented) A system according to Claim 49 wherein the temperature sensor comprises a thermistor.

51. (Previously presented) A system according to Claim 49 wherein the temperature sensor comprises at least first and second thermistors.

52. (Previously presented) A system according to Claim 49 wherein the catheter comprises a shaft having lumens through which heat exchange fluid flows to and from the heat exchanger.

53. (Cancelled)

54. (Previously presented) A system according to Claim 49 further comprising a movable constraining member which is initially disposed in a first position whereby it holds the temperature sensor in its non-deployed position and is subsequently moveable to a second position whereby it no longer holds the temperature sensor in its non-deployed position, thereby allowing the automatic sensor deployment apparatus to move the temperature sensor to its deployed position.

55. (Cancelled)

56. (Previously presented) A system according to Claim 49 wherein the temperature sensor comprises a tube which contains thermistor wires.

57. (Previously presented) A system according to Claim 49 further comprising an automatic sensor deployment apparatus whereby the temperature probe is automatically deployed from its non-deployed position to its deployed position.

58. (Previously presented) A system according to Claim 57 wherein the automatic sensor deployment apparatus comprises a shape memory material which moves the temperature sensor from its non-deployed position to its deployed position as the

shape memory material warms to the subject's body temperature following insertion of the catheter into the vasculature.

59. (Previously presented) A system according to Claim 58 wherein the shape memory material comprises a nickel-titanium alloy.

60. (Cancelled)

61. (Cancelled)

62. (Previously presented) A system according to Claim 49 wherein the catheter comprises an elongate shaft and the temperature sensor is connected to the controller by way of a wire which extends through the catheter shaft proximal to the temperature sensor.

63. (Previously presented) A system according to Claim 49 wherein the catheter comprises an elongate shaft and the temperature sensor is connected to the controller by way of a wire which extends outside of the catheter shaft proximal to the temperature sensor.

64. (Previously presented) A system according to Claim 63 wherein the wire is housed within a luminal member that is affixed to the catheter shaft proximal to the temperature sensor.

65. (Previously Amended) A system according to Claim 49 wherein the catheter comprises a lumen which extends through at least the portion of the catheter proximal to the second location and wherein the temperature sensor may be advanced through said lumen and to its deployed position after the catheter has been inserted into the subject's vasculature.

66. (Previously presented) A system according to Claim 65 wherein an aperture is formed at the second location in communication with the lumen such that the

temperature sensor may be advanced through the lumen and out of the aperture to a deployed position that is a spaced distance away from the catheter.

67. (Previously presented) A system according to Claim 66 wherein the lumen further comprises a ramp which deflects the temperature sensor out of said aperture.

68. (Previously presented) A system according to Claim 67 wherein the ramp includes a first shaped surface and the temperature sensor includes a second shaped surface which mates with the first shaped surface.

69. (Previously presented)A system according to Claim 68 wherein at least the first shaped surface is flat.

70. (Cancelled)

71. (Previously presented) A system according to Claim 49 wherein the temperature sensor, when in its deployed position, is far enough away from the catheter to substantially prevent heat exchange fluid flowing through the catheter from affecting the temperature reading obtained by the temperature sensor.

72. (Previously presented) A system according to Claim 49 wherein the catheter includes an atraumatic tip.

73. (Currently Amended) A method for controlling the temperature of at least a portion of the body of a human or animal subject, said method comprising the steps of:

A) providing a system that comprises i) an elongate catheter that is insertable into the inferior vena cava ~~a blood vessel~~ of the patent, ~~said blood vessel having a wall~~; ii) a heat exchanger at a first location on the catheter, said heat exchanger being sized and configured such that it may be positioned within the subject's inferior vena cava when the catheter is inserted therein ~~vasculature~~ such that blood will flow past the heat exchanger, a heat exchange fluid being passable through the heat exchanger without causing the heat exchange fluid to mix with the

subject's blood, such that heat will be exchanged between the heat exchange fluid flowing through the heat exchanger and blood flowing past the heat exchanger; iii) a temperature sensor affixed to the catheter at a second location on the catheter, said temperature sensor being initially disposed in a non-deployed position and subsequently moveable to a deployed position wherein it extends 1.8 - 3.2 mm away from the catheter in temperature sensing contact with blood flowing through the inferior vena cava without resting ~~does not remain~~ in substantial contact with the blood vessel wall, said temperature sensor being thereby operative, when in its deployed position, to sense the temperature of blood flowing through the subject's ~~vasculature~~ inferior vena cava without substantial interference from heat exchange fluid passing through the catheter or from the adjacent wall of the inferior vena cava; and, iv) a controller which receives a temperature signal from the temperature sensor and, in response to such received signal, controls the temperature and/or rate of heat exchange fluid passing through the heat exchanger to cause heating or cooling of the subject's blood until the temperature sensed by the temperature sensor is substantially the same as a predetermined target temperature;

B) inserting the catheter into ~~a blood vessel that has a wall~~ with the temperature sensor in its non-deployed position;

D) advancing the catheter to a position where the heat exchanger ~~is~~ and the temperature sensor are positioned within the subject's inferior vena cava ~~a blood vessel~~ with blood flowing past the heat exchanger;

C) moving the temperature sensor to its deployed position wherein it extends 1.8 - 3.2 mm away from the catheter in temperature sensing contact with blood flowing through the inferior vena cava without resting in substantial contact with the wall of the inferior vena cava;

D) passing heat exchange fluid through the heat exchager; and

E) allowing the controller to control the temperature and/or rate of heat exchange fluid passing through the heat exchanger in response to signals received from the temperature sensor.

74. (Previously presented) A method according to claim 73 wherein temperature sensor is constructed to be retracted into a lumen of the catheter when in its non-deployed position and advanced out of said lumen of the catheter when in its deployed position and wherein Step D comprises advancing the temperature sensor out of said lumen of the catheter.

75. (Previously presented) A method according to claim 73 wherein temperature sensor is constructed to be retracted into the catheter when in its non-deployed position and to protrude laterally from the catheter when in its deployed position and wherein Step D comprises causing the temperature sensor to protrude laterally from the catheter.

76. (Previously presented) A method according to Claim 73 wherein the deployment triggering apparatus comprises at least one pull wire which, when pulled by an operator, causes the temperature sensor to move from its non-deployed position to its deployed position and wherein Step D comprises pulling said pull wire.

77. (Previously presented) A method according to Claim 73 wherein the deployment triggering apparatus comprises a movable constraining member which is initially disposed in a first position whereby it holds the temperature sensor in its non-deployed position and is subsequently moveable to a second position whereby it no longer constrains the temperature sensor, thereby allowing the temperature sensor to move to its deployed position., and wherein Step D comprises moving said constraining member from its first position to its second position.

78. (Previously presented) A method according to Claim 73 wherein the system provided in Step A further comprises an automatic sensor deployment apparatus whereby the temperature probe is automatically deployed from its non-deployed position to its deployed position, and wherein Step D comprises allowing the

automatic sensor deployment apparatus to automatically move the temperature probe from its non-deployed position to its deployed position.

79. (Currently amended) A system according to claim 49 ~~48~~ further comprising: an automatic sensor deployment apparatus selected from the group consisting of a spring and a biodegradable anchor which initially holds the temperature sensor in its non-deployed position and which subsequently biodegrades following insertion of the catheter into the vasculature, thereby allowing the temperature sensor to move to its deployed position.

80. (Previously presented) A method according to claim 73 wherein the system provided in Step A further comprises an automatic sensor deployment apparatus selected from the group consisting of a) a spring and b) a biodegradable anchor which initially holds the temperature sensor in its non-deployed position and which subsequently biodegrades following insertion of the catheter into the vasculature, thereby allowing the temperature sensor to move to its deployed position and wherein Step C comprises allowing the automatic sensor deployment apparatus to cause the temperature sensor to move to its deployed position.